

## ABSTRACT

One embodiment of the present application includes providing an array ultrasound imaging phase assembly that includes a substrate and several piezoelectric elements each  
5 mounted on the substrate. The elements are spaced apart from each other and arranged in a noncylindrical pattern. An acoustic backing block is mounted to the substrate on a side opposite its matching layers. The array can be positioned along a desired region within a subject's body by movement through the circulatory system or other cavities. While the array assembly is positioned along this region, ultrasonic interrogation of an internal portion of the subject's body  
10 can be performed to generate one or more images.